

REMARKS

Reconsideration of the application is requested in view of the modifications above and the remarks below. Applicants acknowledge the conditional allowance of Claims 2, 4, 8, 9 and 20. Applicants appreciate that the patentability of these claims have been recognized. Applicants' submit, however, that the other claims are also patentable as indicated below.

Claim Objections

The Office Action objected to Claim 18, as being of improper dependent form. Applicants have cancelled the claim and the objection is believed overcome. Reconsideration is requested.

1. Rejection Under 35 USC 102

A. Rejection of Claims 5, 10, 16 and 18 Under 35 USC 102 Over U.S. Pat. No. 5,869,583

The Office Action rejected Claims 5, 10, 16 and 18 under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,869,583 (Granel). The rejection should be withdrawn.

It is well settled that in order for a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in prior art. The disclosure requirement under 35 USC 102 presupposes knowledge of one skilled in art of claimed invention, but such presumed knowledge does not grant license to read into prior art reference teachings that are not there. *See Motorola Inc. v. Interdigital Technology Corp.* 43 USPQ2d 1481 (1997 CAFC).

Applicants' invention encompassed by Claims 5, 10, 16 and 18 relates to a composition containing one or more transition metal compounds conforming structurally to ML_bQ_b , wherein M is a metal selected from the group consisting of chromium, manganese, iron, cobalt, nickel, ruthenium, rhodium and palladium, L is a 2-, 3- or 4-dentate chelating ligand, Q is a mono-anionic or non-ionic ligand, b is an integer equal to or greater than 1 and a is a positive number calculated as the total number of receptor coordination sites on M - b) / the number of donor coordination sites on the ligand, one or more radical-producers and optionally one or more co-

catalysts. In one embodiment, the invention relates to a method of using the composition according to Claim 5 comprising catalyzing the copolymerization of monomers. In another embodiment, the invention relates to a composition containing one or more transition metal compounds conforming structurally to ML_aQ_b wherein M is a metal selected from the group consisting of chromium, manganese, iron, cobalt, nickel, ruthenium, rhodium and palladium, L is a 2-, 3- or 4-dentate chelating ligand, Q is a mono-anionic or non-ionic ligand, b is an integer equal to or greater than 1 and a is a positive number calculated as the total number of receptor coordination sites on M - b) / the number of donor coordination sites on the ligand and one or more radical-producers.

Granel does not anticipate Applicants' invention. Granel is fundamentally different from Applicants' invention. Applicants' invention relates to the copolymerization of at least one polar and at least one non-polar monomer (a challenge that has proven to be extremely difficult problem at manageable pressures due to the polymerization mechanism). Granel clearly emphasizes on the relatively simple polymerization or copolymerization of (meth) acrylic and/or vinyl monomers, i.e. the homo- or copolymerization of polar monomers. (See claim 1 and the elaborated disclosure on the (meth)acrylic monomers and the vinyl monomers in columns 8 and 9). Granel's Examples evidence this position—the homopolymerisation of acrylic monomers (33 examples in total), or the copolymerization of two acrylic monomers (two examples) or the homopolymerisation of a vinyl aromatic monomer (again two examples). Granel mentions, in part, that (co)polymerization of optionally fluorinated olefinic monomers is also possible (column 8, lines 53-56), however, Granel does not mention anywhere that this means the (co)polymerization of such olefinic monomers as the one monomer type (non-polar) together with the emphasized (meth)acrylic or vinyl monomers as second monomer type (polar monomers). Granel neither contains any explicit disclosure nor any suggestion or teaching that by copolymerising the two monomer types in this regard. In other words, Granel does not have the details needed under 35 USC 102 to show that Applicants' invention, as encompassed by these claims, existed in the prior art at the time of Applicants' invention. Reconsideration is requested.

Mo8856

-7-

B. Rejection of Claims 5, 7 and 16-19 Under 35 USC 102 Over U.S. Pat. No. 3,985,718

The Office Action rejected Claims 5, 7 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 3,985,718 (Chabert). The rejection should be withdrawn.

Applicants' invention encompassed by Claims 5, 7 and 16-19 relates to a composition containing one or more transition metal compounds conforming structurally to ML_aQ_b wherein M is a metal selected from the group consisting of chromium, manganese, iron, cobalt, nickel, ruthenium, rhodium and palladium, L is a 2-, 3- or 4-dentate chelating ligand, Q is a mono-anionic or non-ionic ligand, b is an integer equal to or greater than 1 and a is a positive number calculated as the total number of receptor coordination sites on M - b) / the number of donor coordination sites on the ligand, one or more radical-producers and optionally one or more co-catalysts. In one embodiment, the radical-producer is a peroxide, a diazo compound or a mixture thereof. In another embodiment, Applicants' invention relates to a composition containing one or more transition metal compounds conforming structurally to ML_aQ_b wherein M is a metal selected from the group consisting of chromium, manganese, iron, cobalt, nickel, ruthenium, rhodium and palladium, L is a 2-, 3- or 4-dentate chelating ligand, Q is a mono-anionic or non-ionic ligand, b is an integer equal to or greater than 1 and a is a positive number calculated as the total number of receptor coordination sites on M - b) / the number of donor coordination sites on the ligand and one or more radical-producers.

Chabert does not disclose Applicants' invention. The Office Action alleged that Example 2 of Charbert discloses an ethylene polymerization in the presence of a three-component composition including ferric acetylacetonate, lauroyl peroxide and vanadyl acetylacetonate acting as co catalyst. None of the four examples disclosed by Charbert fulfills the definition of the transition metal compound as encompassed by Applicants' invention, e.g., Claim 1 (ML_aQ_b) because none of the metallic compounds requires a ligand Q; the acetylacetonate represents the ligand L, but Q is missing. Further none of the examples teaches the copolymerization of a polar monomer and an non-polar monomer which is one more decisive difference.

Charbert does not have the details needed under 35 USC 102 to show that Applicants' invention, as encompassed by these claims, existed in the prior art at the time of Applicants' invention. Reconsideration is requested.

C. Rejection of Claims 5, 7 and 16-19 Under 35 USC 102 Over U.S. Pat. No. 5,744,560 (Foucher)

The Office Action rejected Claims 5, 7 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,744,560 (Foucher).

Applicants' invention encompassed by Claims 5, 7 and 16-19 relates to a composition containing one or more transition metal compounds conforming structurally to ML_aQ_b wherein M is a metal selected from the group consisting of chromium, manganese, iron, cobalt, nickel, ruthenium, rhodium and palladium, L is a 2-, 3- or 4-dentate chelating ligand, Q is a mono-anionic or non-ionic ligand, b is an integer equal to or greater than 1 and a is a positive number calculated as the total number of receptor coordination sites on M - b) / the number of donor coordination sites on the ligand, one or more radical-producers and optionally one or more co-catalysts. In one embodiment, the radical-producer is a peroxide, a diazo compound or a mixture thereof. In another embodiment, Applicants' invention relates to a composition containing one or more transition metal compounds conforming structurally to ML_aQ_b wherein M is a metal selected from the group consisting of chromium, manganese, iron, cobalt, nickel, ruthenium, rhodium and palladium, L is a 2-, 3- or 4-dentate chelating ligand, Q is a mono-anionic or non-ionic ligand, b is an integer equal to or greater than 1 and a is a positive number calculated as the total number of receptor coordination sites on M - b) / the number of donor coordination sites on the ligand and one or more radical-producers.

Foucher does not anticipate Applicants' invention. This reference has similar deficiencies as the references discussed above. The Office Action refers to Examples V and IX. Examples V and IX are directed to a homopolymerisation of styrene which is a polar monomer. The same applies for all other Examples. The sole copolymerization (Example IV) uses two polar monomers. Once again, there is no hint or suggestion that the copolymerization of at least one polar and at least one non-polar monomer. The process of Foucher requires a stable free radical agent (see claim 1) which is not required by Applicants' invention. This stable free radical

Mo6856

-9-

agent serves to keep the concentration of growing radical chains constant. (see column 10, lines 24ff). such a stable free radical agent is not necessary in our case. Foucher does not have the details needed under 35 USC 102 to show that Applicants' Invention, as encompassed by these claims, existed in the prior art at the time of Applicants' invention. Reconsideration is requested.

2. Rejection Under 35 USC 103

A. Rejection of Claims 7 and 19 Under 35 USC 103 Over U.S. Pat. No. 5,869,583

The Office Action's rejection of Claims 7 and 19 Under 35 USC 103 Over U.S. Pat. No. 5,869,583 (Granel) should be withdrawn.

It is well settled that to establish a *prima facie* case of obviousness, the USPTO must satisfy all of the following requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references. *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Second, the proposed modification must have had a reasonable expectation of success, as determined from the vantage point of one of ordinary skill in the art at the time the invention was made. *Amgen v. Chugai Pharmaceutical Co.* 18 USPQ 2d 1016, 1023 (Fed Cir, 1991), *cert. denied* 502 U.S. 856 (1991). Third, the prior art reference or combination of references must teach or suggest all of the limitations of the claims. *In re Wilson*, 165 USPQ 494, 496, (CCPA 1970).

Applicants' invention encompassed by these claims relates to a composition containing one or more transition metal compounds conforming structurally to ML_aQ_b , wherein M is a metal selected from the group consisting of chromium, manganese, iron, cobalt, nickel, ruthenium, rhodium and palladium, L is a 2-, 3- or 4-dentate chelating ligand, Q is a mono-anionic or non-ionic ligand, b is an integer equal to or greater than 1 and a is a positive number calculated as the total number of receptor coordination sites on M - b) / the number of donor coordination sites on the ligand, one or more radical-producers and optionally one or more co-catalysts, where the radical-producer is a peroxide, a diazo compound or a mixture thereof. In another embodiment, Applicants' invention relates to a composition containing one or more

Mo6856

-10-

transition metal compounds conforming structurally to ML_aQ_b wherein M is a metal selected from the group consisting of chromium, manganese, iron, cobalt, nickel, ruthenium, rhodium and palladium, L is a 2-, 3- or 4-dentate chelating ligand, Q is a mono-anionic or non-ionic ligand, b is an integer equal to or greater than 1 and a is a positive number calculated as the total number of receptor coordination sites on M - b) / the number of donor coordination sites on the ligand and one or more radical-producers selected from the group consisting of peroxide and a diazo compound.

One of ordinary skill in the art following the teachings of Granel would not have been motivated to modify Granel and make or practice Applicants' invention. As discussed above, Granel is different from Applicants' invention. As discussed above, Applicants' invention relates to the copolymerization of at least one polar and at least one non-polar monomer (a challenge that has proven to be extremely difficult problem at manageable pressures due to the polymerization mechanism). Granel clearly emphasizes on the relatively simple polymerization or copolymerization of (meth) acrylic and/or vinyl monomers, i.e. the homo- or copolymerization of polar monomers. Granel simply does not have the teachings necessary under 35 USC 103 to obviate Applicants' invention. Reconsideration is requested.

B. Rejection of Claims 1, 3, 10, 11, 13-15 and 21 under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 3,985,718

The Office Action rejected claims 1, 3, 10, 11, 13-15 and 21 under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 3,985,718 (Chabert).

One of ordinary skill in the art following the teachings of Chabert would not have been motivated to modify Chabert and make or practice Applicants' invention. Chabert is different from Applicants' invention. The teachings of Charbert's Example 2, for instance, (an ethylene polymerization in the presence of a three-component composition including ferric acetylacetonate, lauroyl peroxide and vanadyl acetylacetonate acting as co catalyst) is not suggestive of Applicants' invention. None of the four examples disclosed by Charbert meets the definition of the transition metal compound as encompassed by Applicants' invention, e.g., Claim 1 (ML_aQ_b). Charbert is different from Applicants' invention and 35 USC 103 compels the withdrawal of the rejection. Reconsideration is requested.

Mo6856

-11-

C. Rejection of Claims 1, 3, 10, 11, 13-15 and 23 under 35 U.S.C. 103(a) as being Unpatentable over U.S. Pat. No. 5,744,560

The Office Action rejected Claims 1, 3, 10, 11, 13-15 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,744,560 (Foucher).

One of ordinary skill in the art following the teachings of Foucher would not have been motivated to modify Foucher and make or practice Applicants' invention. at least one polar and at least one non-polar monomer. Foucher's Examples V and IX are directed to a homopolymerisation of styrene which is a polar monomer. The same applies for all other Examples. The sole copolymerization (Example IV) uses two polar monomers. Once again, there is no hint or suggestion that the copolymerization of at least one polar and at least one non-polar monomer. The process of Foucher requires a stable free radical agent (see claim 1) which is not required by Applicants' invention. This stable free radical agent serves to keep the concentration of growing radical chains constant. (see column 10, lines 24ff). such a stable free radical agent is not necessary in our case. Foucher lacks the suggestions required by 35 USC 103. Reconsideration is requested.

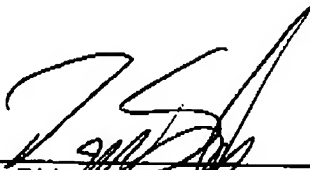
In summary, none of the documents relied on in the Office Action support the rejections under 35 USC 102 or 35 USC 103. None of the documents specifically suggests or contains teachings that the specific combination of a polar and an non-polar monomer can be successfully copolymerized. None of the documents specifically suggests or contains teachings of all the embodiments claimed by Applicants. With respect to the rejections under 35 USC 102, none of the cited references contain sufficient details to prove Applicants' invention existed in the prior art. With respect to the rejections under 35 USC 103, the USPTO has not shown that the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, contains some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references. The USPTO has not shown that the proposed modification must have had a reasonable expectation of success, as determined from the vantage point of one of ordinary skill in the art at the time the invention was made. And the USPTO has not shown that the prior art reference or combination of references must teach or suggest all of the limitations of the claims.

Mo6856

-12-

In view of the above remarks and modifications, Applicants earnestly request allowance of all claims.

Respectfully submitted,

By 
Diderico van Bui
Attorney for Applicants
Reg. No. 38,641

LANXESS Corporation
111 RIDC Park West Drive
Pittsburgh, Pennsylvania 15205-9741
(412) 809-2231
FACSIMILE PHONE NUMBER:
(412) 809-1054

/me
S:\Chem Pittsburgh\Law Shared\SHARED\DOVE\PATENTS\6856\1-21-05 6856 Amendment.doc